

*Hausmann*

DOCKET OF  
R&D PRELIMINARY DISCLOSURES  
AND  
INVENTION RECORDS

CONFIDENTIAL

PHILIP MORRIS, USA  
NOVEMBER, 1983

1003478891

CODE 1 High Relative Importance  
2 Medium Relative Importance  
3 Low Relative Importance

R&D 1 (PM 1046) METHOD OF LOWERING METAL TO ANION RATIO IN PAPER (3)

R. Greene  
New Product Development/Gauvin/Meyer

Normal sodium citrate is applied to wrapper with extra citric acid added to the coating solution such that the solution becomes substantially acid. This coating results in increased molar ratios of citrate to metal. It is believed that this change in the cation to anion ratio results in lower CO and CO per puff delivery. The cation to anion ratio is normally 3:1. Results obtained so far have been for ratios from 1.43:1 to 5.86:1. These results follow a pattern similar to that for humic acid dye additions. This then should apply to both removal of the metal by washing and to lowering the metal to anion ratio of the burn additive.

- \* 5-20-81 Disclosure received - inventor notified.
- 7-22-81 Disclosure to SAH for follow-up
- 9-17-81 Inventor trying to verify early findings.
- 5-27-82 Work continues to define best mode per memo of R. Greene of same date.
- 10-31-83 R. Greene may review work in view of recent information.

R&D 3

\* \* \* \* \*

NON-INHALING CIGARETTE FOR CONVENTIONAL SMOKERS (3)

D. Lowitz  
Applied Research/Farone

A "non-inhaling" cigarette is designed in such a manner that full flavor delivery and nicotine delivery are acceptable to conventional smokers.

- \* 11-30-81 Disclosure received from Patent Group.
- 12-81 Discussed with D. Lowitz.
- 3-29-82 Letter to Dr. Lowitz requesting specific experimental work.
- 10-27-82 Dr. Lowitz indicated that he and Mr. Kallianos are designing models.
- 11-7-83 Interest continues; prototypes will be developed.

\* \* \* \* \*

1003478892

R&D 5 (PM 1074) TREATMENT OF TOBACCO PARTICLES (1) - Returned to Patent Staff  
8/10/82; 6/83 Gregory having search conducted.

G. Keritsis and H. Sun  
Process Development/Watson/Turano

Various processes for treating CT with enzymes such as cellulase are disclosed. The treated material may be homogenized and sprayed or applied onto tobacco components or tobacco substitutes or alternatively, may be extruded in a variety of shapes.

\* \* \* \* \*

R&D 7 (PM 779) MEANS TO MEASURE TOBACCO ROD FIRMNESS (1) - Returned to Patent  
Staff 7/13/82; Assigned PM 1150; Filed 8/2/83.

J. Osmalov and C. Irving  
Administrative Services/Mutter/Turano

\* \* \* \* \*

R&D 9 (PM 980) ANTISTATIC MEANS FOR TRAPPING TOBACCO FINES INSIDE PACK (3)

C. Moogalian  
New Product Development/Gauvin/Meyer

Polypropylene film is placed inside the cigarette package in order to trap tobacco fines, thus preventing migration of fines to the filter tips of cigarettes contained therein.

12-17-81 Disclosure received from Patent Group.  
1-26-82 Inventor notified.  
2-26-82 Inventor is working with Manufacturing to develop.

\* \* \* \* \*

R&D 10 (PM 981) SIMULATED SMOKING ARTICLE (3)

C. Moogalian  
New Product Development/Gauvin/Meyer

A non-tobacco simulated "smoking" article that releases flavorants on puffing but does not require combustion is disclosed.

12-17-81 Disclosure received from Patent Group; conceptual stage at this time.

\* \* \* \* \*

1003478893

R&D 11 (PM 1049) SLIDING VALVE FLAVOR CHAMBER FOR FILTERS (2)

R. Hale  
New Product Development/Daylor/Meyer

A sliding valve flavor chamber is installed in a filter to deliver flavor, particularly in low delivery cigarettes. The smoker may control the amount of flavor delivered. This concept is similar in some respects to the DIAL-A-TAR project.

12-17-81 Disclosure received from Patent Group; conceptual stage.  
1-26-82 Inventor notified.

\* \* \* \* \*

R&D 12 (PM 1069) METHODS FOR ALTERING SIDESTREAM SMOKE (2)

A. Kallianos and R. Greene  
New Product Development/Daylor/Gauvin/Meyer

Treatment of cigarette wrapper with water-soluble phosphates and metaphosphate glasses appears to reduce visibility and quantity of sidestream smoke without altering the porosity of the paper.

12-17-81 Disclosure received from Patent Group.  
1-26-82 Inventors notified.

\* \* \* \* \*

R&D 13 (PM 1070) USE OF FUSED SALTS ON CIGARETTE WRAPPER PAPER (2)

A. Kallianos and R. Greene  
New Product Development/Daylor/Gauvin/Meyer

Treatment of cigarette wrapper paper with fused salts results in improvement of sidestream odor.

12-17-81 Disclosure received from Patent Group.  
1-26-82 Inventors notified.

\* \* \* \* \*

R&D 15 (PM 1027) OXIDATION OF TOBACCO IN PRESENCE OF POLYVALENT METAL BASE -  
Returned to Patent Staff 5/6/82; Filed 2/7/83 by F&N.

N. Rainer  
Process Development/Watson/Turano

Tobacco is heated under basic oxidizing conditions [i.e.,  $\text{Ca}(\text{OH})_2$ ] in a pressure vessel to effect stiffening of the tobacco. CV increases in the range of 25% have been obtained. Other oxidizing agents such as  $\text{O}_3$ ,  $\text{H}_2\text{O}_2$  and calcium peroxide may be used. This is related to the PERKS project and applications covering some aspects were filed in June, 1981.

\* \* \* \* \*

1003478894

R&D 16 (PM 1032)

IMPROVED METHOD FOR MAKING 2-SUBSTITUTED-PYRROLINES AND  
PYRROLIDINES (3)

H. Secor  
Chemical Research/Sanders/Osdene

A process is disclosed in which an  $\alpha$ -hydrogen containing ester is reacted with the anion of a protected secondary lactam or tertiary lactam to give  $\beta$ -keto lactams. Such  $\beta$ -keto lactams can be hydrolyzed with acid to 2-substituted pyrrolines or pyrrolinium derivatives which can then be reduced to 2-substituted pyrrolidines.

2-4-82 Disclosure received from Patent Group.

2-26-82 Inventor notified.

\* \* \* \* \*

R&D 18 (PM 829)

ON-LINE QUANTITATION OF PLASTICIZER IN FILTER RODS

D. Watson and W. Harvey  
Analytical Research/Kuhn/Farone

The device would provide for measurement of absorbed energy at selected microwave frequencies as this energy is directed through the filter rods on a maker. These measurements, once calibrated against plasticizer content of the filter material, would be used through a feedback circuit to control the amount of plasticizer added.

Related to 877.

CODE 4

- \* 4-24-78 Disclosure received by Patent Staff.
- 8-29-81 Memo to SAH asking her to prompt a decision regarding disposition of this case.
- 9-9-81 Farone to send memo concerning disposition.
- 1-4-82 SAH is monitoring ongoing work.
- 2-24-82 Transferred to R&D docket.
- 3-1-82 Inventors notified.

\* \* \* \* \*

1003478895



R&D 19 (PM 836)

BONDING OF POLYPROPYLENE WRAP TO ITSELF BY LASER IRRADIATION

W. Farone, A. Lilly, Jr., P. Martin and W. Claflin  
Physical Research/Kassman/Farone  
New Product Development/Meyer

Techniques for bonding two sheets together at high speed using focused (2 focal length) CO<sub>2</sub> laser beam. Bonded area around 0.008 diameter with reflecting foil beneath the wrap. Speed for bonding was 590 feet/minute with 40-60 watts power.

CODE 1.

\* 5-23-78 Disclosure received by Patent Staff.  
7-12-78 Search requested from outside firm.  
7-28-78 Search received - sent to Farone for evaluation.  
2-24-82 Transferred to R&D docket.  
3-1-82 Inventors notified.  
3-82 Dr. Farone will follow up on this.

\* \* \* \* \*

R&D 22 (PM 1004)

APPLICATION OF SOLID TOBACCO FLAVOR COMPOUNDS TO TOBACCO (3)

F. Sherwood, T. Skidmore, J. Kliever  
Process Development/Watson/Turano

A tobacco flavor compound is dispersed in a standard tobacco casing or after-cut solution and subjected to high shear mixing to reduce the particle size of the compound. The mixing or homogenizing can be accomplished in any of several commercially available homogenizers. Once mixed, the dispersion is sprayed onto tobacco using conventional spraying techniques.

\* 11-20-80 Disclosure received - inventors notified.  
This disclosure was requested by A. Palmer prior to Sherwood's contact with outside party to run tests.  
5-18-81 Awaiting results of development work; sending memo to that effect.  
2-24-82 Transferred to R&D Docket.  
3-1-82 Inventors notified.

\* \* \* \* \*

1003478896

R&D 24 (PM 1059)

METHOD OF ADDING MENTHOL TO TOBACCO IN THE CLOSING STAGES OF CIGARETTE PROCESSING (3)

D. Lowitz  
Applied Research/Farone

(1) Provide menthol crystals in highly perforated container in path of incoming air to a tobacco pneumatic feed system that carries tobacco to the cigarette maker. (2) Same as (1) only spray liquid menthol in same position. (3) Same as (1) or (2) except provide menthol source in path of incoming air to maker chimney.

- \* 7-8-81 Disclosure received - inventor notified.
- 2-24-82 Transferred to R&D docket.
- 3-1-82 Inventor notified.
- 3-8-82 Prior art of L&M may prevent coverage of item (1) concept.
- 10-82 Dr Lowitz plans to pursue with Don Knudson.
- 11-7-83 May pursue with Ken Burns.

\* \* \* \* \*

R&D 27 (PM 1071)

IMPROVED FLAVOR CHAMBER LOW DELIVERY FILTER (2)

H. Spielberg  
Flavor Development/Daylor/Meyer

A filter having a "flavor chamber" and a non-porous funnel placed therein is disclosed. Dilution air as well as the smoke aerosol are forced through the narrowed channel and flavor chamber to create increased flavor and satisfaction for the smoker.

- \* 8-3-81 Disclosure received - inventor notified.
- 2-24-82 Transferred to R&D docket.
- 2-25-82 Discussed progress with the inventor.
- 3-2-82 Inventor notified.
- 4-2-82 Search requested by SAH.
- 4-26-82 Search results sent to inventor by B. Monroe.

\* \* \* \* \*

R&D 28 (PM 1073)

FRICTIONAL CONTROL OF FILLING POWER OF TOBACCO (3)

D. Lowitz  
Applied Research/Farone

The object of the invention is to increase the interparticle friction in cut tobacco filler and particle/cigarette paper friction. Various means are disclosed for accomplishing the ultimate goal of enhanced filling power and therefore the use of less tobacco per cigarette.

- \* 7-29-81 Disclosure received - inventor notified.
- 2-24-82 Transferred to R&D docket.

1003478897

R&D 28 continued    3-2-82    Inventor notified.  
                         11-7-83    Related to some extent to current efforts for adhering tobacco shreds. Work being conducted in Mr. Watson's division.

\* \* \* \* \*

R&D 29 (PM 1067)    IMPROVEMENT OF "SKIP-TIPPING" APPARATUS    (3)

D. Lowitz  
Applied Research/Farone

Machinery is designed to remove adhesive in the region of the precoated tipping paper where perforations exist. The removal methods contemplated include heat and "wipe", or inactivation through high temperature heat, UV radiation, electron bombardment, etc.

\* 7-23-81    Disclosure received in Patent Group.  
             3-5-82    Transferred to R&D Docket.  
             3-9-82    Inventor notified.

\* \* \* \* \*

R&D 31    FLAVORANTS FOR TOBACCO (2)

S. Haut  
Chemical Research/Sanders/Osdene

The disclosure relates to the use of 2,5-deoxyfructosazine as a tobacco flavorant or flavor release agent whereby compounds such as 3-methylvaleric, isobutyric or acetic acids and/or aldehydes or ketones may be released.

3-15-82    Disclosure received in Patent Group.  
3-18-82    Disclosure transferred to R&D Docket.  
3-18-82    Inventor notified.  
4-28-82    Search conducted by M. Mosby of TIS.  
7-8-82    Work progressing according to Dr. Haut.

\* \* \* \* \*

R&D 32    DENITRATION OF BURLEY STRIP BY SEMI-SOLID FERMENTATION DURING PRIMARY PROCESSING (3)

J. Osmalov  
Development Engineering/Mutter/Turano

Sterilized Burley strip is subjected to microbial denitration during primary processing. This process avoids the necessity of separate plant facilities to carry out denitration via an RL type process.

1003478898



R&D 32 continued

3-82 Disclosure received in Patent Group.  
3-18-82 Disclosure transferred to R&D Docket.  
3-18-82 Inventor notified.

\* \* \* \* \*

R&D 33

FIBRILLATION OF CT TO EFFECT INCREASED FILLING CAPACITY

J. Osmaiov  
Development Engineering/Mutter/Turano

CT is fibrillated and then applied to filler material which has been expanded but not reordered or alternatively, it is added to the total blend after the ADT dryer. Pectin or some other "adhesive" material may be required to make the fibrils stick to the shreds.

3-82 Disclosure received in Patent Group.  
3-18-82 Disclosure transferred to R&D Docket.  
3-18-82 Inventor notified.  
11-7-83 Work is being conducted in Mr. Watson's division.

\* \* \* \* \*

R&D 34

FILTER MATERIAL FOR REDUCTION OF NO - Returned to Patent Staff  
5/5/82; 6/83 Application being reviewed;

N. Rainer and C. McClung  
Process Development/Watson/Turano

Granular silica gel is treated with an aqueous solution of sodium permanganate containing colloidal silica. This formulation has resulted in unexpected storage stability of the composition when placed in a PSP filter. On smoking using such filter, NO has been reduced by as much as 50%.

\* \* \* \* \*

R&D 35

SOFTENING OF TOBACCO BY USE OF STEAM/PRESSURE

G. Keritsis and S. Wrenn  
Process Development/Watson/Turano

Tobacco is treated, optionally in presence of base, with steam/pressure to soften, release pectins, and enhance ease of homogenization. The homogenized slurry is used to coat RL.

8-9-82 Submitted to Patent Staff.  
8-12-82 Returned for follow-up in R&D.  
9-22-82 Inventors notified; examples requested.  
11-4-82 A search will be requested prior to preparing examples.  
11-8-83 According to Mr. Keritsis, additional trials are planned to define best mode.

\* \* \* \* \*

1003478899

R&D 36

USE OF PECTIN-RELEASING AGENTS DURING TOBACCO SOFTENING PROCESS

G. Keritsis and S. Wrenn  
Process Development/Watson/Turano

Uses pectin releasing agents in process disclosed immediately above (R&D 35).

8-9-82 Submitted to Patent staff.  
8-12-82 Returned for follow-up in R&D.  
9-22-82 Inventors notified; examples requested.  
11-4-82 Search should be requested by submitters.  
11-7-83 Considerable work has been conducted. Need to review patents of Hind et al.

(Recommendation for R&D 35-36 - In view of close prior art, a patentability search and opinion appear to be in order before proceeding with an application).

\* \* \* \* \*

R&D 37

EXPANSION OF BRIGHT TOBACCO IN PRESENCE OF  $\text{Ca}(\text{OH})_2$ ,  $\text{H}_2\text{O}$  and

$\text{H}_2\text{O}_2$

(3) - Returned to Patent Staff 1/83; Now PM 1139. See Patent Staff Docket for Status

N. Rainer and G. Keritsis  
Process Development/Watson/Farone

Bright tobacco filler is expanded in the tower according to WET with the improvement comprising addition of  $\text{Ca}(\text{OH})_2$  and  $\text{H}_2\text{O}_2$  prior to heating. Similar cases on stem expansion have been allowed and have been issued.

\* \* \* \* \*

R&D 38

LASER PERFORATION OF ADHESIVE BACKED TIPPING PAPER (3) -

Returned to Patent Staff 1/21/83; Now PM 1145. See Patent Staff Docket for Status.

H. Nepomuceno and J. Nash  
New Products/Gauvin/Meyer

Methods for perforating heat activatable adhesive precoated tipping paper are disclosed.

\* \* \* \* \*

R&D 39

TOBACCO TREATMENT WITH CALCIUM CITRATE (2) - Returned to Patent Staff 1/83; Now PM 1139. See Patent Staff Docket for Status.

N. Rainer and D. Siwec  
Process Development/Watson/Farone

Calcium citrate in "transient water-soluble form" is sprayed onto tobacco at 1-5%. Following drying (non-tower) the tobacco has a 15% increase in CV.

\* \* \* \* \*

R&D 40

ASEPTIC SAMPLING OF FERMENTATION BROTH - Publication  
Recommended

R&D 41

IMPROVEMENTS FOR PROCESSING PRECOATED TIPPING PAPER

D. Lowitz  
Applied Research/Farone

A number of concepts and approaches are disclosed for processing, including laser perforation, of precoated tipping papers.

7-7-82 Submitted to Patent Staff; D24.  
10-15-82 Copy sent to R&D for follow-up.  
10-25-82 Dr. Farone recommends Code 4 (defensive; normal handling).  
1-28-83 Related subject matter will be handled in PM 1145 of Nash and Nepomuceno.

\* \* \* \* \*

R&D 42

IMPROVED EXPANSION - WET PLUS CARBONATED WATER (3) - Inactive

J. Osmalov  
Development Engineering/Mutter/Turano

\* \* \* \* \*

R&D 43

VARIABLE DELIVERY CIGARETTE - Combined with PM 1126 and filed.

W. Geiszler and R. Newsome  
New Products/Gauvin/Meyer

\* \* \* \* \*

R&D 44

IMPROVEMENTS IN APPLICATION OF SMALL TOBACCO PARTICLES TO TOBACCO (3)

G. Keritsis and S. Wrenn  
Process Development/Watson/Turano

Discloses methods such as sieving, air laying, electrostatic or dry powder coating techniques for application of small tobacco particles onto a tobacco web.

8-82 Submitted to Patent Staff; D63  
10-15-82 Copy sent to R&D for follow-up.  
10-28-82 Mr. Turano recommends search in view of possible close art (AMF, PM Australia, etc.).  
11-10-82 Search and opinion by Patent Staff requested.  
11-7-83 Submitters need to push for search if this approach is still of interest.  
11-8-83 According to Mr. Keritsis, he is waiting to confirm early results in pilot plant.

\* \* \* \* \*

1003478901

R&D 45

RL RODS AND/OR FILTERS (3)

G. Keritsis  
Process Development/Watson/Farone

RL or non-tobacco materials are shaped into rods/filters using paper-filter making techniques of crimping/gathering the product. The smoking material may optionally be foamed or filled with foam.

8-82 Submitted to Patent Staff; D65  
10-15-82 Copy sent to R&D.  
10-29-82 Mr. Turano recommends search including review of "know-how" books by AMF.  
11-10-82 Review of art by Mr. Keritsis suggested.

\* \* \* \* \*

R&D 46

HIGH EFFICIENCY PARTICULATE FILTER HOUSING FOR USE IN LAB HOODS -  
Recommend release to inventor; Dropped.

\* \* \* \* \*

R&D 47

AMMONIA TREATMENT OF BRIGHT TOBACCO (1) (Now PM 1159)

C. Owens, P. Martin, et al  
Applied Research/Laroy/Farone

Discloses preliminary work on treatment of bright to make it more Burley-like.

8-26-82 Submitted to Patent Staff with memo stating importance of this work; D72  
10-15-82 Copy sent to R&D for review.  
10-19-82 Supplemental report/disclosure written by P. Martin and sent to A. Palmer.  
10-25-82 Dr. Farone rates this disclosure as having high relative importance.  
11-3-82 Memo to A. Palmer from SAH regarding priority and request for immediate action.  
12-1-82 Memo from P. Martin regarding experimental status.  
10-31-83 Summary statement: This case was assigned PM #1159 on 6/10/83. Several meetings have been organized to discuss the subject matter and additional experimental information from the CAR unit has been provided. Dr. Inskeep is preparing the application.

\* \* \* \* \*

1003478902

R&D 48

LOW TAR FILTER

R. Southwick  
Chemical Research/Sanders/Osdene

Filter of conventional construction is made from low-melting tow, i.e., guaranyl acetate, which, as heat from the tobacco rod nears the filter, causes the filter to fuse thereby preventing the smoker from additional "high-tar" puffs.

10-82 Submitted to Patent Staff; D77  
10-15-82 Copy sent to R&D for review.  
10-27-82 Dr. Osdene recommends prototype prior to pursuing patent coverage.  
10-26-83 Status report requested.  
11-8-83 Work will be pursued if interest exist according to Dr. Sanders.

\* \* \* \* \*

R&D 49

USE OF ABIENOL IN SUNTAN LOTION - Recommend release to inventor pending final decision on ABIENOL/TOBACCO Treatment.

\* \* \* \* \*

R&D 50

CIGARETTE HOLDER

R. Gaudlitz  
Process Development/Knudson/Turano

A holder for encompassing the entire cigarette is disclosed. The holder may be constructed of Bakelite or other non-combustible material. Ribs and valves may be aluminum.

8-82 Submitted to Patent Staff; D82  
10-15-82 Copy sent to R&D for review.  
10-29-82 Mr. Turano recommends discussing subject at R&D Patent Meeting on 11/12.  
1-28-83 To be reviewed at Feb. 1 meeting of U.S. Patent Committee  
5-10-83 Letter to Mr. Adkins requesting review.

\* \* \* \* \*

R&D 51

TOW-IN-TOW COAXIAL FILTER - Per memo and search of A. I. Palmer, this disclosure will not be pursued.

R&D 52

IMPROVED METHOD FOR APPLYING CT TO TOBACCO MATERIALS - Inactive

J. Osmalov  
Development Engineering/Mutter/Turano

\* \* \* \* \*

1003478903



R&D 53

IMPROVED DRYING AND STIFFENING OF TOBACCO (3) - Inactive

J. Osmaiov

Development Engineering/Mutter/Turano

\* \* \* \* \*

R&D 54

QUALITY ASSURANCE OF PROCESSED TOBACCO - Recommend publishing.

R. Southwick

Chemical Research/Sanders/Osdene

\* \* \* \* \*

R&D 55 A & B

APPLICATION OF FLAVORANT TO ENHANCE MAINSTREAM DELIVERY (2)

R. Southwick

Chemical Research/Sanders/Osdene

Encapsulated flavorant is applied, preferably electrostatically, to the inner periphery of rod wrapper. Apparatus for carrying out the invention is described. In a second approach, moderately volatile flavorants, (bp 200-350°C) are applied to the inner rod wrap, which is then immediately dried and used to make cigarettes.

10-82 Submitted to Patent Staff and SAH.

10-27-82 Dr. Osdene recommends reduction to practice to demonstrate utility.

10-26-83 Status report requested.

11-8-83 Will be pursued if interest exist according to Dr. Sanders.

\* \* \* \* \*

R&D 56

SEQUENTIAL EXTRACTION OF BOTANICAL MATERIALS USING SUPERCRITICAL CO<sub>2</sub> (1)

R. Comes

Chemical Research/Sanders/Osdene

Supercritical fluid extraction (SFE) of tobacco to obtain sequential fractions of potential natural flavorants is disclosed. One advantage is that very little nicotine is removed using SFE techniques.

10-1-82 Submitted to Patent Staff and SAH.

10-27-82 Dr. Osdene recommends Code 1, high relative importance to PM.

11-10-82 R&D Management recommends pursuing coverage pending availability of experimental data.

11-7-83 Equipment has been set up Dr. Patrick to conduct small scale work.

\* \* \* \* \*

1003478904

R&D 57

DESIGNS FOR PROJECT DATA PRODUCTS

R. Newsome  
New Products/Gauvin/Meyer

- 10-1-82 Submitted to Patent Group; D88  
10-28-82 Mr. Meyer noted interest; it is possible that a design patent could be pursued or that the subject matter may be incorporated into a normal patent application.  
1-28-83 M. Sarofeen is investigating possible design patents.

\* \* \* \* \*

R&D 58

MULTIPURPOSE ROTOR FOR LASER PERFORATING - Now PM 1131

P. Martin  
Applied Research/Kassman/Farone

\* \* \* \* \*

R&D 59

MOISTURE AND MENTHOL EQUILIBRATION OF CIGARETTE PACKING MATERIALS (3) - Inactive

J. Osmalov  
Development Engineering/Mutter/Turano

\* \* \* \* \*

R&D 60

IMPROVEMENTS RELATED TO TOBACCO FILLING POWER AND PRODUCTS THEREFROM

D. Lowitz  
Applied Research/Farone

Tobacco is dried to approximately 8% OV and then treated with microwave at  $10^9$  Hz to effectively "seal" the tobacco/water interface. Water is then reintroduced to about 12.5 - 13.5% OV.

- 10-27-82 Submitted to Patent Staff and SAH.  
11-1-82 Lowitz is conducting preliminary studies at MIT.  
11-3-82 Requires management review, per note from A. Palmer.  
11-10-82 Management recommends holding pending set up of equipment.  
11-7-83 Equipment is set up and work is underway to define the process.

\* \* \* \* \*

R&D 61

IMPROVEMENTS IN TOBACCO PROCESSING

D. Lowitz  
Applied Research/Farone

1003478905

R&D 61 continued      Subject matter is related to R&D 60.  
Objects are as follows:

1. Provide a tobacco with good combustion and filling power properties;
2. Provide a process to produce the tobacco of the invention;
3. Provide a dielectric measurement system designed to readily identify the results on the invention; and
4. Provide process for measuring characteristics of tobacco that identifies the tobacco as having been suitably processed.

Tobacco is processed to achieve a  $10^9$  Hz imaginary part of the dielectric constant (E") peak of a predesignated value.

10-27-82      Submitted to Patent Staff and SAH.

11-3-82      Requires management review, per note from A. Palmer.

11-10-82      Management recommends holding pending experimental work on new equipment.

\* \* \* \* \*

R&D 62

ELECTROMAGNETIC DOOR CLOSURE - Release to inventor.

R. Southwick  
Chemical Research/Sanders/Osdene

\* \* \* \* \*

R&D 63

IMPROVED CIGARETTE PRODUCT

R. Southwick  
Chemical Research/Sanders/Osdene

The object of the invention is to produce a cigarette with a controlled number of puffs, controlled tar per puff and maximum flavor. This disclosure combines into one product several of the concepts previously disclosed in R&D 45, 55A and 55B.

10-25-82      Submitted to Patent Staff and R&D.

10-27-82      Dr. Osdene recommends that prototypes be made to demonstrate utility.

11-10-82      Management will consider pending development of a prototype.

10-83      Status report requested.

11-8-83      Will be pursued if interest exist according to Dr. Sanders.

R&D 64

ODORANT RELEASE IN FILTERS

R. Southwick  
Chemical Research/Sanders/Osdene

Encapsulated odorant is placed in filter tow and on extinguishing, a pleasant odor is released to off-set "Ash-tray odor".

1003478906

R&D 64 continued    11-9-82    Disclosure received; preliminary, placed on R&D docket.  
                         10-83    Status report requested.  
                         11-8-83    Will be pursued if interest exist according to Dr.  
   Sanders.

\* \* \* \* \*

R&D 65

ROLL-YOUR-OWN CIGARETTE MAKER

R. Newsome  
Cigarette Development/Gauvin/Meyer

11-82    Transferred to Patent Staff  
5-83    Filed in USPTO

\* \* \* \* \*

R&D 66

RL PRODUCTION USING HIGH SOLIDS SLURRY

G. Keritsis, H. Merritt, R. Seligman

Tobacco Fundamentals/Watson/Turano

Improved process for making RL is disclosed. Dry, comminuted tobacco is mixed with liquid to produce a high solids content, homogeneous slurry which is then cast or extruded into RL sheet.

11-17-82    Disclosure received.  
11-8-83    Experimental work completed; examples to be submitted.

\* \* \* \* \*

R&D 67

IMPROVED METHOD FOR TREATING HIGH TOBACCO SOLIDS SLURRY

G. Keritsis and R. Seligman  
Tobacco Fundamentals/Watson/Turano

Relates to addition of tobacco dust to tobacco slurry containing pectin release additives. The high solids content slurry is then cast or extruded into sheet form.

11-17-82    Disclosure received.  
11-8-83    Experimental work completed; examples to be submitted.

\* \* \* \* \*

R&D 68

CIGARETTE DESIGN

W. Geiszler and W. Nichols  
Cigarette Development/Gauvin/Meyer

The design involves concentric tubes in which peripheral channels are open to pull sidestream and mainstream smoke. The surface of the inner tube is highly porous and ventilation openings are located adjacent the filter or mouthpiece.

1003478907

R&D 68 continued

- 1-3-83 Disclosure received.
- 1-10-83 Management recommends placing on R&D docket pending further work.
- 1-20-83 Letter to A. Palmer and submitters per decision.
- 11-4-83 Disclosure called to attention of Blish and Palmer in view of recent work of Fisher and Lephardt.

\* \* \* \* \*

R&D 69

STATIC LOOSE END DETECTOR

W. Sanderson & C. Irving  
Tobacco Fundamentals/Watson/Turano

A device for measuring loose ends or the firmness of the ends of cigarettes is disclosed.

- 12-22-83 Disclosure received.
- 1-10-83 Management recommends placing on R&D docket pending development of a dynamic device.
- 11-2-83 Mr. Irving is preparing information for application.

\* \* \* \* \*

R&D 70

CIGARETTE BEETLE CONTROL/TRANSFERRED TO PATENT STAFF

D. Faustini  
Biochemical Research/Charles/Osdene

- 1-3-83 Disclosure received.
- 1-10-83 Recommended placing on R&D docket.
- 8-83/ Transferred to Patent Staff for preparation of application. (PM 1169)

\* \* \* \* \*

R&D 71

TREATMENT OF SEL

R. Southwick  
Chemical Research/Sanders/Osdene

SEL is photo-oxygenated to improve odor and smoking characteristics. The treated SEL is then used in making RL product.

- 12-27-82 Disclosure received.
- 1-10-83 Placed on R&D docket pending development work.
- 7-18-83 Transferred to Patent Staff for patent consideration.
- 9-22-83 Returned to R&D pending more definitive results.

\* \* \* \* \*

1003478908



R&D 72

CIGARETTE WITH PERMANENT CASING

W. Nichols  
Cigarette Development/Gauvin/Meyer

A permanent smoking device, possibly of ceramic material into which tobacco may be inserted as well as a filter at the mouth end is disclosed. The device may be inherently porous or have spaced perforations to facilitate smoking.

- 1-14-83 Disclosure received.  
2-28-83 Disclosure reviewed and placed on R&D docket pending development of a prototype.

\* \* \* \* \*

R&D 73

ODORANT IN FILTER

G. Koch  
Development Engineering/Mutter/Turano

A rupturable capsule of odorant is placed adjacent the filter tip. On crushing out the cigarette, the capsule is ruptured thereby releasing a pleasant odor.

- 1-14-83 Disclosure received.  
1-18-83 Letter to A. Palmer re R&D 64 of Southwick and Koch disclosure.  
2-28-83 Placed on R&D docket pending development.

\* \* \* \* \*

R&D 74

TOBACCO FLAVOR ENHANCERS

R. Izac and S. Haut  
Chemical Research/Sanders/Osdene

The use of cyclocitrylideneacetic acids as tobacco flavorants is disclosed.

- 1-24-83 Disclosure received; work is preliminary.  
2-28-83 Placed on R&D docket.  
3-24-83 Searches completed according to R. Izac.

\* \* \* \* \*

R&D 75

TOBACCO FLAVORANTS

A. Kallianos and H. Lanzillotti  
Flavor Development/Daylor/Meyer

The use of  $\alpha,\beta$ -dicarbonyl flavorants in tobacco products is disclosed.

1003478909

R&D 75 continued    2-1-83    Disclosure received.  
                      2-28-83   Placed on R&D docket pending further development work.  
                      10-83    Work continues to be of interest.

\* \* \* \* \*

R&D 76                FILTER ADDITIVES

J. Charles, R. Pages, J. Seeman  
Biochemical Research/Charles/Osdene  
Chemical Research/Sanders/Osdene

Filter additives potentially useful in reducing gas phase constituents or other pyrolysis products are disclosed.

2-1-83    Disclosure received.  
2-28-83   Disclosure placed on R&D docket pending definitive results  
5-17-83   Report of preliminary results received.  
7-18-83   Progress report from R. Kinser received. Work continues.

\* \* \* \* \*

R&D 77                SMOKING DEVICE

J. Charles  
Biochemical Research/Osdene

A smoking device consisting of an extruded tobacco rod surrounded by a ceramic or porous material such as silica gel is disclosed. Advantages would include reduced sidestream, controlled delivery, etc. / See also R&D 72 and 84.

2-2-83    Disclosure received.  
2-28-83   Reviewed by management; indication of high interest.  
             Placed on R&D docket pending development of a prototype.

\* \* \* \* \*

R&D 78                ARYL ALDOPYRANOSIDES AS TOBACCO FLAVORANTS

G. Chan  
Chemical Research/Sanders/Osdene

2-10-83   Disclosure received.  
2-28-83   Reviewed and placed on R&D docket.  
5-2-83   Recommendation made to publish rather than patent;  
             compounds known, synthesis is new.

\* \* \* \* \*

1003478910

R&D 79

CONVERSION OF TOBACCO PITH INTO FILLER

G. Bokelman, W. Ryan, and H. Sun  
Analytical Research/Kuhn/Farone

Disclosed is a process for preparing a low nitrogen containing, high tensile strength RL product which contains tobacco pith.

2-22-83 Disclosure received.

2-28-83 Placed on R&D docket pending pyrolysis studies and subjective analysis.

\* \* \* \* \*

R&D 80

$\beta$ -HYDROXY- $\alpha$ -KETOESTERS AS TOBACCO FLAVORANTS  
TRANSFERRED TO PATENT STAFF

Y. Houminer and G. Chan  
Chemical Research/Sanders/Osdene

Precursors for releasing desirable  $\alpha$ -diketones on smoking are disclosed. Methods for making and applying to tobacco compositions are also disclosed.

2-22-83 Disclosure received.

2-28-83 Placed on R&D docket pending availability of subjective results or pyrolysis data on compounds in tobacco.

Inventors notified.

10-14-83 Note to Dr. Chan requesting information on subjectives.

11-4-83 Information received and case transferred to Patent Staff for consideration.

\* \* \* \* \*

R&D 81

HOLLOW CHANNEL IN A CIGARETTE FILTER

J. Hall  
Cigarette Development/Gauvin/Meyer

Method for making a hollow channel in a filter using a laser beam is disclosed. The configuration of the channel may be varied depending on the focus of the beam.

3-10-83 Disclosure received.

4-22-83 Placed on R&D docket pending further development.

\* \* \* \* \*

R&D 82

OZONOLYSIS OF ABIENOL TO GENERATE NEW FLAVORANTS  
TRANSFERRED TO PATENT STAFF

R. Southwick and W. Edwards  
Chemical Research/Sanders/Osdene

1003478911

R&D 82 continued    3-25-83    Disclosure received.  
                      4-22-83    Placed on R&D docket pending further development.  
                      7-18-83    Transferred to Patent Staff for preparation of an  
   application. (Now PM 1172)

\* \* \* \* \*

R&D 83

NATURAL TOBACCO ADHESIVES

L. Weissbecker  
Biomaterials/Whidby/Farone

Naturally occurring tobacco adhesives obtained from tobacco cell cultures are disclosed. The adhesive may be employed to adhere shreds in the rod, thereby minimizing tobacco "fall-out."

4-15-83    Disclosure received.  
4-7-83    Placed on R&D docket pending further, definitive results.  
8-9-83    Report on analysis of extra cellular material received.  
10-83    Report by Mr. Weissbecker received. Need information on application to tobacco and possibly subjectives.

\* \* \* \* \*

R&D 84

TREATMENT OF CIGARETTE WRAPPING MATERIAL

G. Keritsis  
Tobacco Fundamentals/Watson/Turano

Wrapper is treated with a silicate and non-combusting salt to form a "cage or mesh" around the rod as it burns so as to prevent coal drop off.

5-16-83    Disclosure received.  
7-7-83    Placed on R&D docket pending development of a prototype.  
11-7-83    Submitter needs to review art on this topic. (See also R&D 72 and 77.)

\* \* \* \* \*

R&D 85

APPARATUS FOR DISENTANGLING AND DISTRIBUTING CUT TOBACCO FILLER

Callahan, Sherwood, and Thatcher  
Tobacco Fundamentals/Watson/Turano

The apparatus disclosed represents a modification of an existing textile prefeeder for use in feeding cut tobacco. A second "fancy roll" is added to produce a thinner, more disentangled, more uniform flow of cut tobacco.

5-18-83    Disclosure received.  
7-7-83    Placed on R&D docket pending completion of prototype equipment; will reevaluate at that time.

\* \* \* \* \*

1003478912

R&D 86

ALPHATHUJAKETONIC ACID AND ESTERS AS TOBACCO FLAVORANTS  
TRANSFERRED TO PATENT STAFF 10-14-83.

W. Edwards  
Chemical Research/Sanders/Osdene

6-14-83 Disclosure received.  
7-7-83 Placed on R&D docket pending availability of subjective results.  
9-15-83 W. Edwards provided status of work.  
10-14-83 Transferred to Patent Staff along with D161, a related disclosure.

\* \* \* \* \*

R&D 87

VARIABLE DUTY CYCLE CHOPPER WHEEL

P. Martin

A variable duty cycle chopper wheel that can be used in conjunction with any power or light meter is disclosed. This case is related to PM-1131--Rotary Beam Chopper with Continuously Variable Duty Cycle, but is considered a distinct embodiment.

4-22-83 Disclosure received.  
7-7-83 Placed on R&D docket pending further development.

/ \* \* \* \* \*

R&D 88

SYNTHESIS OF NICOTINE RELEASE AGENTS

E. Sanders and Y. Houminer  
Chemical Research/Sanders/Osdene

4-22-83 Disclosure received.  
7-7-83 Placed on R&D docket pending definitive results.

\* \* \* \* \*

R&D 89

METHOD OF TREATING FILLER TO FORM COHERENT ROD

G. Keritsis  
Tobacco Fundamentals/Watson/Turano

Filler at the maker is cased/impregnated with a "foamed binder or adhesive" to effect adhesion of the shreds and formation of a coherent rod having improved coal strength and less loose ends.

5-16-83 Disclosure received.  
7-7-83 Placed on R&D docket pending further development work; need specific examples.  
11-8-83 Mr. Keritsis hopes to have work completed by end of year.

\* \* \* \* \*

1003478913



R&D 90

ADDITIVES FOR TOBACCO PRODUCTS

N. Rainer  
Tobacco Fundamentals/Watson/Turano

Dr. Rainer discloses the use of magnesium acid phosphate to accomplish the following:

- 1) increase the filling power of tobacco either by allowing the compound to react with calcium or ammonia "in situ" in tobacco;
- 2) to slow burn rate;
- 3) to provide controlled release of ammonia; or
- 4) to cause opacification of cigarette wrap.

6-21-83 Disclosure received.

9-20-83 Placed on R&D docket pending definitive results.

\* \* \* \* \*

R&D 91

CIGARETTE PACKS OF PLASTIC OR FOIL

R. Newsome and W. Nichols  
Cigarette Development/Gauvin/Meyer

Plastic or rigid cigarette packs containing 10 cigarettes each, sealed on the inner surface with foil and then closed together to form one pack, have been disclosed by the submitters.

7-22-83 Disclosure received.

9-30-83 Placed on R&D docket pending some indication of interest from the N.Y. Marketing Department.

\* \* \* \* \*

R&D 92

CIGARETTE PACK - BLISTER-TYPE PRODUCTION

W. Nichols and R. Newsome  
Cigarette Development/Gauvin/Meyer

Blister-type packaging of cigarettes using heat-seal foil, is disclosed by Messrs. Newsome and Nichols. Optionally each pack might contain 10 cigarettes.

7-22-83 Disclosure received.

9-20-83 Placed on R&D docket pending input from N.Y. Marketing Department.

\* \* \* \* \*

R&D 93

CIGARETTE MAKER WEIGHT CONTROL SYSTEM

N. Nunnally and C. Higgins  
Development Engineering/Mutter/Turano

1003478914

R&D 93 continued

A cigarette weight control system designed by Messrs. Higgins and Nunnally is disclosed. The controller will provide for improved weight distribution and quality and allow for target weight reduction.

7-25-83 Disclosure received.

9-20-83 Placed on R&D docket; Mr. Turano will review as development work progresses.

\* \* \* \* \*

R&D 94

#### LASER BEAM SPLITTER

R. Newsome  
Cigarette Development/Gauvin/Meyer

A laser beam ducting and reflectance type beam splitter is disclosed by Mr. Newsome. (Drawing only submitted.)

8-2-83 Disclosure received.

9-6-83 Additional information requested from submitter.

9-20-83 Placed on R&D docket; more definitive disclosure needed before decision on filing can be made.

\* \* \* \* \*

R&D 95

#### HYGROSCOPIC POWDER TO ADHERE TOBACCO SHREDS

N. Rainer  
Tobacco Fundamentals/Watson/Turano

Dr. Rainer has disclosed certain hygroscopic materials for application to filler to cause adherence or inter-adhesion of tobacco shreds. Suitable powders include reaction product of calcium and fructose, magnesium acid phosphate or CEL solids. Said to reduce loose ends.

8-2-83 Disclosure received.

9-20-83 Placed on R&D docket pending further development work; preliminary results are promising. (See also R&D 83 and R&D 89.)

\* \* \* \* \*

R&D 96

#### USE OF INTUMESCENT MATERIALS IN CIGARETTE PRODUCTS

R. Southwick  
Chemical Research/Sanders/Osdene

Dr. Southwick has disclosed the possibility of using intumescent materials in smoking articles. Concept (a) suggest use to alter burn properties. Concept (b) suggest use in an extruded rod or honeycomb rod wherein the pack of rods could be microwaved at point of sale to effect foaming of the rod to enlarge to normal size cigarette.

1003478915

